



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1999-0222

August 24, 1999

Mr. Don Otsby
Supervisor, Umpqua National Forest
2900 Stewart Parkway
P.O. Box 1008
Roseburg, OR 97470

Re: Section 7 Consultation on Actions Affecting Umpqua River Cutthroat Trout and Oregon Coast Coho Salmon

Dear Mr. Ostby:

In a March 17, 1999 letter, Mr. Rios, acting Forest Supervisor, requested initiation of Endangered Species Act (ESA) formal consultation on several proposed actions in the Tiller Ranger District (TRD) and North Umpqua Ranger District (NURD) which may affect Umpqua River (UR) cutthroat trout and/or Oregon Coast (OC) coho salmon. Specifically, the Umpqua National Forest (UNF) proposed the PJ, Bucky, Zinc, and Spam timber sales; TRD range management; ten miscellaneous Emergency Repair of Federally-Owned (ERFO) road projects; Jackson Creek road damage repair and relocation; Zinc Creek bridge repair; and Falcon Creek bridge replacement. The biological assessment (BA) and other information provided describe the environmental baseline and the effects of the eighteen actions.

We will address all eighteen of these actions in this letter, the purpose of which is to document in our biological opinion (BO) that the proposed actions are not likely to jeopardize the continued existence of the potentially affected anadromous salmonid species listed under the ESA, as explained below. The portions of the grazing allotments which are in the Rogue River basin are not considered in this BO, but in a separate informal consultation letter. This consultation on UNF proposed actions is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

UR cutthroat trout (*Oncorhynchus clarki clarki*) were listed as endangered under the ESA by the National Marine Fisheries Service (NMFS) on August 9, 1996 (61 FR 41514). Critical habitat for this species was designated on January 9, 1998 (63 FR 1388). On April 5, 1999, NMFS proposed to reclassify UR cutthroat trout as a candidate species because recent genetic studies have shown that the



UR cutthroat trout Evolutionarily Significant Unit (ESU)¹ is likely a portion of a larger Oregon Coast cutthroat ESU which is not thought to be in danger of extinction (64 FR 16397). UR cutthroat trout, however, will remain endangered until a final rule is published in approximately one year. The OC coho salmon (*O. kisutch*) ESU was listed as threatened on August 10, 1998 (63 FR 42587); critical habitat for this ESU was proposed on May 10, 1999 (64 FR 24998). OC steelhead (*O. mykiss*) in the Umpqua River basin are considered by NMFS to be a candidate species under the ESA (63 FR 13347).

The NMFS (1997a, b, and c) has adopted a habitat-based jeopardy analysis. OC coho salmon and OC steelhead habitat are completely overlapped by that of UR cutthroat trout habitat in these proposed actions. UNF personnel made the effects determinations in the BA following procedures described in NMFS (1997a, b, and c). The effects of the individual actions proposed in the BA were evaluated by UNF biologists at the project scale using criteria based upon the biological requirements of UR cutthroat trout, OC coho salmon, other potentially affected anadromous salmonids, and the Aquatic Conservation Strategy (ACS) objectives of the Northwest Forest Plan (NFP) (USDA and USDI 1994). The UNF biologists also evaluated the potential effects of the proposed actions on the watershed scale and in the long-term, in the context of watershed processes. The Level 1 streamlined consultation team for the UNF has defined *long-term* for ESA consultation purposes as about a decade, while *short-term* effects would occur for a lesser period, most typically a few months to a few years. The Level 1 streamlined consultation team for the UNF met on January 11, 12, and 25, February 1 and 8, and March 8 and 12, 1999, to review the UNF's effect determinations and documentation of ACS consistency for the subject actions. The team members substantially concurred with the ESA effects determinations (exceptions discussed below).

Proposed Actions

The proposed actions would occur in the Upper South Umpqua, Middle South Umpqua, Jackson Creek, Elk Creek, and Upper Cow Creek fifth field hydrologic unit code (HUC)² watersheds (a fifth field HUC will be considered a "watershed" for consultation purposes) of the South Umpqua River and the Little River fifth field HUC of the North Umpqua River in Douglas County, Oregon. Specifically, in the Upper South Umpqua watershed the Bucky timber sale (Bucky) is proposed for the Lower Buckeye Creek sixth field HUC; also, single ERFO projects are proposed for the Emerson, Upper

¹For the purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species.

² Stream drainages can be arranged in nested hierarchies, in which a large drainage is composed of smaller drainages. The UNF uses a system in which these drainages are numbered in a computer data base for analytical purposes. The numerical identifier of a particular drainage in this data base (which is located in a specific column or "field" in the data base) is called its hydrologic unit code, or HUC. This HUC increases with decreasing drainage area, thus a fourth field HUC (such as the South Umpqua River) is composed of several fifth field HUCs (such as Jackson Creek, Upper Cow Creek, etc.), and so on. The Northwest Forest Plan determined that the scale for Watershed Analyses should be 20 to 200 square miles, which often corresponds to a fifth field HUC.

Buckeye, and Skillet Creek sixth field HUCs. In the Middle South Umpqua watershed, the Zinc timber sale (Zinc) is proposed for the Zinc Creek and Camp Coffee Pot sixth field HUCs; the Spam timber sale (Spam) is proposed for the Lower Deadman, Francis/Budd, and Sam/Collins sixth field HUCs; single ERFO projects are proposed for the Ash Creek and Collins sixth field HUCs; and the Zinc Creek Bridge Repair is proposed for a site on the mainstem of the South Umpqua River (no representative sixth-field HUC). In the Jackson Creek watershed, the Jackson Creek Road relocation is proposed for the Tallow-Twomile Creek and Middle Jackson Creek sixth field HUCs; the Falcon Creek Bridge replacement is proposed for the Falcon Creek, Abbott Creek, and Cougar Butte sixth field HUCs; and single ERFO projects are proposed for the Deep Cut and Switchback Creek sixth field HUCs. In the Elk Creek watershed, Tiller range management (grazing) is proposed for the Flat Creek, Shed Creek, Upper Elk Creek, Diamond Creek, Brownie Creek, Drew Creek, and Callahan Creek sixth field HUCs; and three ERFO projects are proposed for the Callahan Creek sixth field HUC. Only grazing is proposed for the Upper Cow Creek watershed, which would occur in the South Fork Cow Creek, East Fork Cow Creek, and Beaver Creek sixth field HUCs. Finally, the PJ timber sale (PJ) is proposed for the Pinnacles and Junction sixth field HUCs of the Little River watershed. Environmental Assessments (EAs), Biological Evaluations (BEs) and other documents, which were appended to the UNF's BA, have detailed information on each of the actions but brief summaries are provided below.

Bucky. The UNF proposes to harvest timber from about 281 acres of the Matrix land allocation in Bucky, using commercial thin, pine health, and/or understory removal prescriptions on the 13 units. Commercial thinning from below would occur in near-pure single cohort Douglas-fir stands, while the pine health prescription would remove competing trees around individual ponderosa and sugar pine. Overstocked understories of shade tolerant and fire intolerant species (primarily white fir) would be harvested in understory removal. These treatments are intended to partially restore the stands to the historic, pre-fire suppression condition. Follow-up slash treatment would be predominantly underburning (181 acres), with hand-piling and burning in the remainder of the units. More than three-quarters of the yarding would be by partial-suspension cable, with a minority of the timber yarded by ground-skidding equipment (GSE) equipped with a shovel or integral arch. In addition to the proposed harvest, the UNF would precommercial thin (PCT) about 218 acres of plantations within the planning area. During PCT, trees below marketable size are felled to enhance the growth of those remaining; it is not considered to be harvest as the trees would not be sold, yarded, or used off-site.

About 0.34 miles of permanent road and 0.82 miles of semi-permanent road would be constructed for Bucky, while about 9.84 miles of road would receive drainage upgrades. In addition, about 4.9 miles of existing road would be storm proofed and inactivated, 0.2 miles would be blocked off (removed from the transportation system), and 2.59 miles of existing road would be obliterated. Upgrading consists of repairing and resizing culverts to pass 100-year flood events, adding additional drainage structures to reduce stream channel extension, and reshaping and resurfacing when necessary. Road inactivation consists of closing roads, pulling culverts, water barring at frequent intervals, and otherwise reducing the risk of road erosion. Obliteration includes the following measures which would eliminate a driveable surface: Removing culverts and reshaping stream channel crossings, ripping and vegetatively restoring road surfaces and recontouring the road prism to natural hill slopes. The Buckeye Slide, a

chronic source of sediment to Buckeye Creek, would also be stabilized. None of the timber harvest, PCT, or new road construction would occur within Riparian Reserve (RR), although one of the two quarries that would be used for road rock is located in a RR.

Miscellaneous ERFO Road Repairs. The ten proposed ERFO actions in this category were prompted by flood and earthflow damage to the roads in 1996 and 1997 and include actions in the Upper South Umpqua, Middle South Umpqua, Jackson Creek, and Elk Creek watersheds of the South Umpqua River. Four ERFO sites associated with Jackson Creek Road repair and relocation and one site associated with Falcon Creek Bridge replacement are described and analyzed with these proposed actions below. Funding for ERFO projects comes from the Federal Highway Administration (FHWA) and is specific to identified ERFO sites. As a consequence, the UNF cannot repair, decommission, or conduct other road-related restoration activities with ERFO funding at locations other than those specified by the FHWA. Most of the site damage consists of upslope or downslope embankment failure and typical repairs consist of removal of debris, maintenance of drainage features, road realignment, and/or reinforcement of embankments. Eight of the sites are within RR, but most would not require in-water work. Any in-water work that would be required would be performed during the Oregon Department of Fish and Wildlife (ODFW) in-water work window.

Zinc. In Zinc, the UNF proposes to regeneration harvest 76 acres, commercially thin from below 302 acres, and apply an understory removal/pine health prescription to an additional 25 acres. About 20 acres of the commercial thinning would be in the RR of intermittent streams, with the remainder of the harvest in the Matrix land allocation. The regeneration harvest would occur in stands which, because of previous harvest, no longer provide interior late successional habitat. Leave trees in the regeneration harvest units would represent 20 to 30% of the original stand to provide coarse down wood and snags. Thinning from below is designed to accelerate the achievement of late successional characteristics by enhancing the growth of the remaining trees and would chiefly occur in even-aged plantations. A minimum of a 30-foot no-cut buffer would be used in the commercial thinning units within RR. The understory removal/pine health prescriptions are described above. Yarding and hauling of harvested timber would be accomplished by partial (one-end) uphill suspension cable-yarding (about 40%), GSE (about 30%), or a combination of both methods. Slash from the sale units would be hand-piled and burned (about 80%) or removed through underburning (less than 20%). In addition to the proposed harvest, the UNF would PCT about 38 acres of plantations within the planning area. About 1.61 miles of temporary road would be constructed or reconstructed for the sale, while 17.62 miles of existing roads would be upgraded, 2.3 miles would be inactivated, and 2.46 miles would be obliterated. Two quarries (on Matrix land) would be expanded by a total of about 3 acres to provide material for road treatments. Some trees would be removed during quarry expansion. None of the new road construction or quarry expansion would occur within RR.

Spam. In Spam, the UNF proposes to commercially thin from below and/or apply a pine health prescription to a total of 312 acres in the Matrix land allocation. Yarding and hauling of harvested timber would be accomplished by partial (one-end) uphill suspension cable-yarding (more than 40%) or by cable-yarding combined with tractor-yarding or GSE. Slash from the sale units would be hand-piled and burned (about 70%), removed through underburning (less than 10%), or disposed by using a

combination of both methods. In addition to the proposed harvest, the UNF would PCT about 400 acres of plantations within the planning area. About 0.08 miles of temporary road would be constructed or reconstructed for the sale, while 20.43 miles of existing roads would be upgraded and 2.07 miles would be obliterated. Two quarries on Matrix land would be expanded by a total of about 4 acres to provide material for road treatments. Some trees would be removed during quarry expansion. None of the harvest, PCT, new road construction, or quarry expansion would occur within RR.

Zinc Creek Bridge Repair. The Zinc Creek bridge spans the South Umpqua River just downstream of Zinc Creek's confluence. The UNF discovered that bridge bent number 2 was eroded and undermined in 1996 and proposes to fill the eroded/undermined area with concrete and to armor the upstream base of the bent with 20 cubic yards of riprap in order to protect the structural integrity of the bridge. The UNF would construct a sandbag (or similar) cofferdam around the base of the bent, pump the enclosed area dry, and apply concrete (hand-mixed on site) to the eroded areas of the bent which rests on bedrock. After the concrete cures, the cofferdam would be removed and the riprap would be lowered into place from the bridge deck. The action is proposed for the July 1 - September 15 ODFW in-water work period when flow in the South Umpqua River should be low and warm.

Jackson Creek Road Repair and Relocation. Storm events during the winter of 1996-7 damaged seven sites on the 29 and 2947 roads (contiguous) along Jackson Creek. The UNF proposes to use ERFO and other flood-specific funding to repair four of these sites, relocate about 1.58 miles of the 29 road, obliterate 1.52 miles of the 29 road (including three ERFO repair sites) and 0.71 miles of the 2900-350 road. The 1.5-mile section of 29 road would be relocated out of the RR of Jackson Creek, but would cross the RR of two non-fishbearing perennial streams. The road along Jackson Creek would be planted with an appropriate mix of native trees, and large woody material cleared from construction of the new road would be distributed on the obliterated road. At MP 7.87 and MP 8.5 of the 29 road and MP 1.3 and 1.7 of the 2947 road, the UNF would repair eroded embankment slopes by realigning the roadway away from Jackson Creek and stabilizing the shoulder with rock. In-water portions of the actions would be performed during the ODFW in-water work window.

Falcon Creek Bridge Replacement. The Falcon Creek bridge spanned the South Umpqua River just downstream of Falcon Creek's confluence. Storm events during the winter of 1996-7 washed out the south abutment and part of the approach to the bridge and damaged the north abutment, thereby blocking vehicle access to 30 miles of the 2947-300 road system. The UNF proposes to use ERFO and other flood-specific funding to replace the bridge with a new 128-foot single span bridge on the same site as the damaged bridge. As a part of the same project, the UNF also proposes restorative activities in the 2947-300 road system which are not specifically funded at this time. These activities include road obliteration (8.82 miles), inactivation (1.85 miles), and upgrading (19.37 miles); replacement or modification of a culvert on Falcon Creek to accommodate the passage of fish and

large woody material; and repair of an ERFO site (one not discussed above). Construction of the new bridge would require the clearing of about 0.08 acres of riparian vegetation, the use of four quarries (two of which are within RR), and the erection of a two-span temporary bridge to facilitate stream crossings during the construction of the new permanent bridge. In-water portions of the actions would be performed during the ODFW in-water work window.

Grazing. The UNF proposes to lease three allotments for cattle grazing (216 cow/calf pairs annually) for a ten-year period beginning in 1999. The proposed allotments include the Divide and Drew Creek allotments (in the Elk Creek watershed) and the Diamond Rock allotment (in both the Elk Creek and Upper Cow Creek watersheds). About 22% of the Diamond Rock allotment is in the Trail and Evans Creek watersheds of the Rogue River basin, along with less than 1% of the Divide allotment, but because of the watershed-level focus of land management agency consultation, actions outside of the Umpqua River basin are not considered in this BO and will be addressed in a separate consultation. The 35,740-acre area (30,488 acres within the Umpqua River basin) proposed for grazing is about a three-quarter reduction in acreage compared to recent management, an action the UNF believes is necessary to protect sensitive areas such as earthflow terrain. The proposed grazing season would be May 1 through October 31, and management actions and monitoring are proposed to prevent or minimize use and damage to riparian areas and other sensitive sites.

PJ. In PJ, the UNF proposes to partially harvest 402 acres of late seral stands and commercially thin 80 acres of second-growth stands in the Little River Adaptive Management Area. Late seral conditions would be retained in the stands by retaining all trees larger than 40 to 45 inches in diameter, and by maintaining approximately 60 to 70% canopy closure. In four of the twenty late seral harvest units, openings of a quarter to half an acre would be created. The area of these openings would total about 10% or less of the stands in the four units, so that canopy closure within these stands would be slightly less than in the other sixteen late seral units. The harvest prescription in the commercial thinning units would result in 10% of the area with 30% canopy retention, 15% of the area with 100% canopy retention, 25% of the area with 50% canopy retention, and 50% of the area with 75% canopy retention. Thus, cumulative canopy closure within each of the four commercial thinning units would be about 68%. Yarding and hauling of harvested timber would be accomplished by partial (one-end) uphill suspension cable-yarding for about 70% of the acreage, by helicopter for about 15% of the acreage, and the remainder by GSE or a combination of cable-yarding and GSE. About three-quarters of the acreage would be underburned to remove naturally-occurring fuel and slash to diminish the potential for catastrophic wildfire. In addition to commercial harvest, about 435 acres of PCT is proposed for second-growth stands in PJ while 88 acres of PCT is proposed for natural regeneration sub-stands within late seral harvest units. The UNF also proposes to place a total of about 300 pieces of large wood into lower Pinnacle (1.5 miles) and Junction creeks (2 miles) by helicopter to improve aquatic habitat.

About 2.2 miles of temporary road would be constructed for PJ, while about 14.8 miles of existing roads would be storm proofed and 7.6 miles of existing road would be decommissioned. Storm proofing is similar to road upgrading (described above) while decommissioning is similar to obliteration and would eliminate the hydrologic and erosional effects of the decommissioned road. The UNF would

also replace the main culverts on lower Pinnacle and Junction creeks with structures sized to pass the 100-year flood event and modified to facilitate the upstream passage of juvenile salmonids. None of the proposed harvest, PCT, road construction, or helicopter landings would occur within RR.

Biological Information and Critical Habitat

The biological requirements, including the elements of critical habitat, of each of the ESUs are discussed in NMFS (1997a, b and c). Environmental baseline conditions in the Umpqua Basin are discussed in Johnson *et al.* (1994), NMFS (1997c, at 2-7) and NMFS (1997b, at 13-14). Cumulative effects as defined under 50 CFR 402.02 and are discussed for the Umpqua Basin in NMFS (1997b, at 40-43). These respective analyses are incorporated herein by this reference. NMFS is not aware of any newly available information that would materially change these previous analyses of biological requirements, environmental baseline or cumulative effects for the purpose of this Opinion. Some general biological information is provided below.

UR cutthroat trout inhabit the Umpqua River Basin of southwest Oregon. This ESU consists of resident, potamodromous, and anadromous life histories. Individuals of all three forms have the potential to inhabit the Upper South Umpqua, Middle South Umpqua, Jackson Creek, Elk Creek, and Little River watersheds. The completion of Galesville Dam blocked anadromous runs of UR cutthroat trout from Upper Cow Creek, but the potential for anadromy is likely still present in the population(s) of that watershed. UR cutthroat trout are known to be year-around inhabitants—using rearing, feeding, spawning, and incubation habitat—of all of the subject watersheds and the watersheds are likely used as migration corridors by both adults and juveniles of the ESU.

Historically, adult anadromous cutthroat passed Winchester Dam, on the North Umpqua River, predominantly from late June through November, with peaks in mid-July and mid-October, while juvenile outmigration is thought to occur chiefly from March through October (Johnson *et al.* 1994).

OC coho salmon are an anadromous species which typically have a three-year life-cycle and historically occurred in all six subject watersheds. As noted above, Galesville Dam blocked anadromous fish runs to Upper Cow Creek; a landlocked coho salmon run apparently survived above the dam for a few years but appears to have been extirpated. Adult OC coho salmon spawn in the late fall and winter with fry emergence occurring the following spring. Juvenile coho salmon rear for about a year in natal streams and then outmigrate to the ocean as smolts in the spring. Some male coho return to freshwater to spawn the fall and winter of the same year as their smolt migration, but the majority of adult OC coho salmon do not return to spawn until having spent about 18 months in the ocean. Thus, an active OC coho salmon stream would be used for some life-stage—as rearing, feeding, spawning, and incubation habitat—year-round.

The UNF's Watershed Analysis (WA) (TRD 1995b) for Jackson Creek lists approximately 70 miles of stream in that watershed inhabited by anadromous or resident salmonids, including OC coho salmon and UR cutthroat trout. Prior to the construction of Galesville Dam, approximately 18 miles of the UNF-managed portion of the Upper Cow Creek watershed supported anadromous fish runs and

another 19 miles supported resident salmonids (TRD 1995c). In the Little River WA (NURD and BLM 1995), it is documented that the Little River watershed as a whole provides about 48 miles of habitat for anadromous fish and another 70 miles of resident fish habitat. Similar estimates were not available for the Upper South Umpqua, Middle South Umpqua, or Elk Creek watersheds, but each likely provide dozens or scores of miles of habitat for anadromous and resident salmonids.

Although general information about the populations of UR cutthroat trout and OC coho salmon within the Upper South Umpqua, Middle South Umpqua, Jackson Creek, Elk Creek, Upper Cow Creek, and Little River watersheds is available, specific information on the size and health of anadromous fish populations in the Umpqua Basin is often lacking or incomplete. Because of the general paucity of the type of knowledge which would allow the UNF and NMFS to assess the relative health of anadromous salmonid populations on a stream or watershed scale, and the fact that all fish species, populations, and individuals depend on adequate habitat, NMFS uses a habitat-based system in ESA consultation on land-management activities (NMFS 1997c). NMFS has applied the concept of properly functioning habitat condition to assess the quality of the habitat that fish need to survive and recover. This concept is discussed in the next section.

Site-specific environmental baseline descriptions and effects determinations were made by UNF personnel for each of the proposed timber sales. This information is found in the project-level (sixth field HUC) Matrices of Pathways and Indicators which were included in the BA. In addition, watershed-level information on UR cutthroat trout and OC coho salmon habitat is provided in the fifth field Matrix of Pathways and Indicators also included in the BA.

The NMFS concurred with these project and watershed-scale environmental baseline descriptions and effects determinations (exceptions are noted below) in the streamlined consultation process and NMFS considered them in addition to the broad-scale analysis conducted for NMFS (1997b) described above.

Evaluation of Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations (50 CFR Part 402). NMFS (1997a) describes how NMFS applies the ESA jeopardy and destruction/adverse modification of critical habitat standards to consultations for Federal land management actions in the Umpqua River basin.

As described in NMFS (1997a), the first steps in applying the ESA jeopardy standards are to define the biological requirements of UR cutthroat trout and OC coho salmon and to describe the species' current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in NMFS 1997c). The analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action

area, which is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR 402.02). If the net effect of the activities are found to jeopardize the listed species, then NMFS must identify any reasonable and prudent alternatives to the proposed action.

Biological Requirements. For this consultation, NMFS finds that the biological requirements of UR cutthroat trout and OC coho salmon are best expressed in terms of current population status and environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the species. The NMFS defines this properly functioning condition as the state in which all of the individual habitat factors operate together to provide a healthy aquatic ecosystem that meets the biological requirements of the fish species of interest. Individual, measurable habitat factors (or indicators) have been identified (e.g., water temperature, substrate, etc.), and the properly functioning values for these indicators have been estimated, using the best information available. These indicators, when considered together, provide a summary of the conditions necessary to ensure the long-term survival of aquatic species.

The NMFS has assembled a set of these indicators in a form called the Matrix of Pathways and Indicators (MPI) (NMFS 1996). The MPI is a table that lists several categories or “pathways” of essential salmonid habitat, such as water quality, instream habitat elements, and flow/hydrology. Under these pathways are quantitative habitat indicators for which ranges of values are identified that correspond to a properly functioning condition, an “at-risk” condition, and a not properly functioning condition. Because these habitat measurements are more readily available than quantitative measurements of biological variables such as incubation success, standing crop, and growth rate, the NMFS and UNF are able to assess the health of stream reaches or watersheds based on the condition of their component indicators. Such an assessment provides a baseline description of the health of the stream/watershed, and also allows the effects of an action (e.g., a timber sale) to be evaluated.

Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are necessary for the survival and recovery of the listed species. It follows, then, that NMFS has determined that an action which would cause the habitat indicators of a watershed to move to a degraded condition, or one which further degrades a not properly functioning watershed, is also likely to jeopardize the continued existence of the listed species.

In addition to the use of the MPI at the watershed level to assist in making “jeopardy” determinations in Section 7 consultations (especially for land management agencies), the NMFS also uses the MPI at the site or project scale. Assuming that a Federal agency determines that an action may affect listed species, either informal or formal consultation is required. To assist in this determination, the action agency prepares a project-level MPI. If no “degrade” checkmarks in the MPI occur at this scale, then the action is probably not likely to adversely affect individuals of a listed species, and an informal Section 7 consultation is appropriate. If the proposed action degrades any of the indicators at this smaller scale (often the sixth or seventh field HUC), then the action is generally considered likely to adversely affect listed salmonids, and formal consultation is required.

Current range-wide status of listed species under environmental baseline. NMFS described the current population status of the UR cutthroat trout in its status review (Johnson *et al.* 1994) and in the final rule (August 9, 1996, 61 FR 41514) and critical habitat for UR cutthroat trout was designated by the NMFS on January 9, 1998 (63 FR 1338). Although little change has occurred in UR cutthroat trout abundance or habitat conditions, the NMFS proposed on April 5, 1999 (64 FR 16397) to de-list this ESU because recent genetic information supports its inclusion in a larger Oregon Coast ESU, which is not thought to be in danger of extinction. NMFS also described the current population status of OC coho salmon in a status review (Weitkamp *et al.* 1995), and in the final rule (August 10, 1998, 63 FR 42587). The recent range-wide status of both these species is summarized in NMFS (1997c).

Current status of listed species under environmental baseline within the action areas. As noted above, the action area includes all areas directly or indirectly affected by the proposed action. The general action areas for this BO can be defined as the Upper South Umpqua, Middle South Umpqua, Jackson Creek, Elk Creek, Upper Cow Creek, and Little River watersheds.

As noted above, UR cutthroat trout and OC coho salmon use the action areas as rearing, feeding, spawning, and incubation habitat, as well as a migration corridor. The environmental baseline of the action areas is dominated by conditions rated largely as not properly functioning or at-risk (see watershed MPIs in BA). These conditions are primarily the result of past forest management and agricultural practices, in particular, timber harvest/clearing within riparian zones, large-scale clearcut timber harvest, road construction (especially within riparian zones), and timber yarding in riparian zones and streams.

MPI Indicators particularly at issue in this consultation are those which received a degrade check for the proposed actions at the project scale, although the NMFS has also reviewed the UNF's maintain and restore MPI effects determinations. For the projects reviewed in this biological opinion, the sediment and turbidity MPI indicator was often, but not always, determined to be degraded at the project scale by these actions. The substrate and water chemistry indicators were often thought to be degraded by the activities at the project scale, while the RR, large woody material (LWM), maximum water temperature, and pool character indicators were each thought to be degraded at the project scale by one of the proposed actions. For the indicator baselines at the watershed scale, the sediment and turbidity indicator was listed as not properly functioning or at-risk for all six watersheds; the substrate and water chemistry watershed baselines (where known and provided) were similarly rated. Baseline conditions for the RR, LWM, and pool character were also not properly functioning in the watersheds where proposed activities were thought to degrade those indicators at the project scale.

Based on the best information available on the current status of UR cutthroat trout and OC coho salmon (NMFS 1997c), NMFS assumptions given the information available regarding population status, population trends, and genetics (NMFS 1997a), and the relatively poor environmental baseline conditions within the action areas (see MPIs in BA and UR cutthroat trout and OC coho salmon final listing rules), NMFS finds that the environmental baseline does not currently meet all of the biological

requirements for the survival and recovery of the listed species within the action area. Actions that do not retard attainment of properly functioning aquatic conditions, when added to the environmental baseline, are necessary to meet the needs of the species for survival and recovery.

Analysis of Effects

The effects determinations in this opinion were made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting the effects of the actions on them. This process is described in NMFS (1996). This assessment method, in which MPIs are assembled by action agency biologists, was designed for the purpose of providing information in a tabular form for NMFS to determine the effects of actions subject to consultation.

The UNF uses the MPI to make project-level effects determinations, i.e., whether an action is not likely to adversely affect (NLAA) or likely to adversely affect (LAA) the ESA-listed species (in this case, UR cutthroat trout and OC coho salmon). If any of the indicators are thought to be degraded at the project level by the action, the action is determined to LAA. In turn, if a project was determined to LAA the ESA-listed species, then, based on the jeopardy criteria described in NMFS (1997b), the UNF must determine whether the project, when combined with the environmental baseline for the watershed over the long-term, is consistent with the ACS of the NFP. This consistency is condensed to a two-part test in NMFS (1997a, at 14): Is the proposed action in compliance with the standards and guidelines for the relevant land allocation; and does the proposed action meet all pertinent ACS objectives? The ACS objective consistency determination is made with the assistance of the MPI at the watershed scale.

Project-Level Effects. The UNF-provided MPIs for the effects of actions are expressed in terms of the expected effect (i.e., restore, maintain, or degrade) on aquatic habitat factors in the project area for each sixth field HUC (or other project-level spatial scale) affected by the proposed actions. The results of the completed checklist for the proposed action provide a basis for determining the effects of the action on the environmental baseline in the project area.

In this consultation, the UNF provided one or more project-level MPIs for each of the proposed actions. In some cases, the UNF prepared only one MPI for several sixth field HUCs that might be affected by a single action if the baseline conditions of, and effects on, those HUCs were thought to be similar or if the conditions/effects could be summarized. For two actions, the UNF prepared project-level MPIs that evaluated the effects of the actions on the mainstem of the South Umpqua River because such matrices were more relevant than sixth-field HUC matrices. In general, the UNF determined that the actions would not degrade indicators at the project level, chiefly because of the maintenance and enhancement of the riparian zones.

Bucky. The UNF used the Buckeye Creek drainage, consisting of the Lower and Upper Buckeye Creek sixth field HUCs, as the spatial scale for its project-level MPI. For Bucky, the UNF found that on the project level, the sediment and turbidity and substrate indicators would be degraded as a result of the action; all other indicators would be maintained, except for the landslide rate indicator, which

would be restored. The UNF attributes the degrade checkmark for sediment and turbidity and substrate to a transitory increase in stream sedimentation as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drainage upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and underburning. In Bucky, as well as the other timber sales and road-related actions in this biological opinion, RR buffers and/or road construction and maintenance techniques should prevent most, if not all, ground-disturbing activities from transmitting substantial amounts of sediment into stream channels. NMFS agrees that stabilization of the Buckeye Slide would be restorative because the slide currently acts as a substantial chronic sediment source. However, it is not clear from the information available that the action would move the landslide rate indicator baseline fully to properly functioning, although TRD (1996a) notes that few landslides are currently present in the sale area. From the documents provided in the BA, it appears that all of the action alternatives would increase the mass wasting index over the baseline, but this does not necessarily equate to an increase in the number of landslides from management activities. The retention of full RR widths would make it unlikely that any natural or management-cause landslides would transmit substantial amounts of sediment to stream channels, or if a landslide is large enough to carry to a stream channel, to ensure that substantial amounts of LWD from the RR and sale unit would accompany the sediment.

While the proposed harvest would decrease canopy cover in the short-term, a UNF hydrologic analysis shows that the action would not affect the hydrologic recovery at the project (Buckeye planning area) scale in the short or long-term. This is because Hydrologic Recovery Percentage (HRP) would remain above 75% for the project areas after the treatments and much or all of the full canopy (70% or more for HRP purposes) of the harvest and PCT units should return within 5 to 10 years because of enhanced growth of the remaining trees. Previously-harvested units in the project areas also regain canopy cover over time. During rain-on-snow events, snow in and under the canopy tends to melt less quickly than snow on the ground that is subject to direct contact by warm air and rain. Thus, the retention of substantial canopy is likely to slow the runoff of water during rain-on-snow events. Because rain-on-snow events cause many or most peak flows in the UNF, harvest prescriptions which retain the majority of canopy cover are also likely to contribute to the maintenance of peak flow characteristics.

Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Bucky is LAA UR cutthroat trout and OC coho. The NMFS concurs with the UNF on this project-level effects determination.

Miscellaneous ERFO Road Repairs. Although the UNF grouped these ten actions as likely to adversely affect, the UNF also found that three of the actions would not have any effect on the project-level baseline. Absent additional information of potential adverse effects, NMFS believes that the three actions—ERFO sites 02-03-97, 02-44-97, and 02-06-97—do not merit formal consultation and therefore are not evaluated with LAA actions under Watershed-Level Effects below. For the remaining seven road repairs, the UNF found that on the project level, the water chemistry indicator would be

degraded by all the proposed actions, the sediment and turbidity indicator would be degraded by five of the proposed actions, and the substrate and pool quality indicators would be degraded by two of the actions.

The UNF checked the water chemistry indicator as a degrade at the seven sites because of the possibility that the activities would increase the likelihood of vehicle accidents and therefore the potential for contaminant spills into waterways. The UNF also felt that the equipment or materials used in the repairs also had some potential to introduce contaminants into streams. However, because of precautionary measures which the UNF will take in these activities (described in the BA), the NMFS believes that the likelihood of degradation of the water chemistry indicator is negligible. Therefore, the two proposed road repairs—ERFO sites 02-07-97 and 02-08-97—for which only the water chemistry indicator was checked as a degrade do not merit formal consultation, and therefore are not evaluated with LAA actions under Watershed-Level Effects, below.

The UNF attributes the degrade checkmarks for sediment and turbidity at five locations—ERFO sites 02-13-96, 02-20-96, 02-24-96, 02-24-97, 02-26-97—to a transitory increase in stream sedimentation due to road repair or equipment/materials hauling. Three of the sites are outside of RR and would contribute little or no sediment and turbidity to streams. Only two of the remaining proposed repairs—ERFO sites 02-20-96 and 02-24-97, both in the Callahan Creek sixth field HUC in the Elk Creek watershed—involve work within the RR. These are also the two projects which received degrade checkmarks for substrate and pool quality. The repair of ERFO site 02-20-96 would involve the excavation of a bench at a minimum of 50 feet from the stream channel, but still has some potential to transmit sediment to the creek. The proposed construction of a gabion basket embankment at ERFO site 02-24-97 would likely mobilize some sediment into the creek in the short-term, but is also likely to decrease the long-term sediment supply.

Because there would be no direct effect on individuals of the listed species, and no short or long-term degradation of habitat indicators (as evidenced by the project-level MPIs and discussed above), the NMFS believes that the proposed 02-03-97, 02-44-97, and 02-06-97 ERFO projects are NLAA the UR cutthroat trout and OC coho. Similarly, because of the unlikely nature of the identified potential adverse habitat effects, the NMFS believes that the proposed 02-07-97, 02-08-97, 02-13-96, 02-24-96, and 02-26-97 ERFO projects are NLAA the listed species. Finally, because short-term, localized sedimentation from work within the RR is more than negligibly likely (and is confirmed by the presence of the degrade checkmarks on the project scale), the UNF determined that the proposed 02-20-96 and 02-24-97 subject ERFO projects are LAA UR cutthroat trout and OC coho. With exceptions noted above, the NMFS concurs with the UNF on these project-level effect determinations.

Zinc. For Zinc, the UNF found that on the project level, the sediment and turbidity indicator would be degraded as a result of the action and all other indicators would be maintained, except for the road density and location and RR indicators, which would be restored. The UNF attributes the degrade checkmark for sediment and turbidity to a transitory increase in stream sedimentation, as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drainage upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and fuel

treatments. As noted above, RR buffers and/or road construction and maintenance techniques should prevent most, if not all, ground-disturbing activities from transmitting substantial amounts of sediment into stream channels. The risk of mass wasting (i.e., landslides) from the proposed management activities should be low because the affected subwatersheds have little earthflow or steep terrain, unstable areas were specifically excluded from sale units, roads would be located on ridgetops and other stable locations, and the harvest prescriptions on most of the sale acreage would allow the retention of substantial root strength. In addition, the retention of full RR widths on the large majority of harvest units would make it unlikely that any natural or management-caused landslides would transmit substantial amounts of sediment to stream channels, or if a landslide is large enough to carry to a stream channel, to ensure that substantial amounts of LWD from the RR and sale unit would accompany the sediment.

Because the proposed thinning within RR would remove some trees (although not within the immediate riparian zone) the large woody material indicator is marked as a degrade. However, the long-term effect on the indicators is likely to be positive because the remaining trees will grow more quickly and should eventually restore the RR more quickly than if the RR is not thinned.

The NMFS agrees that the proposed road obliteration/inactivation and RR thinning in Zinc would be restorative. However, it is not clear from the information provided that the action would move the road density and location or RR indicator baselines fully to at-risk from their current not properly functioning. While the proposed harvest would decrease canopy cover in the short-term, a UNF hydrologic analysis shows that the action would not affect the hydrologic recovery at the project (Zinc Creek and Camp Coffee Pot sixth field HUC) scale (see discussion under Bucky). Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Zinc is LAA UR cutthroat trout and OC coho. The NMFS concurs with the UNF on this project-level effects determination.

Spam. For Spam, the UNF found that on the project level, the sediment and turbidity indicator would be degraded as a result of the action and all other indicators would be maintained, except for the drainage network and road density and location indicators which would be restored. The UNF attributes the degrade checkmark for sediment and turbidity to a transitory increase in stream sedimentation as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drainage upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and fuel treatments. As noted above, RR buffers and/or road construction and maintenance techniques should prevent most, if not all, ground-disturbing activities from transmitting substantial amounts of sediment into stream channels.

As shown in the BA, the risk of landslides and other mass wasting from the proposed management activities should be low because the affected subwatersheds have little area susceptible to such events. Also, the harvest prescriptions should allow the retention of substantial root strength. In addition, the retention of full RR widths on the large majority of harvest units would make it unlikely that any natural or management-caused landslides would transmit substantial amounts of sediment to stream channels, or if a landslide is large enough to carry to a stream channel, to ensure that substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

The NMFS agrees that the proposed road obliteration/inactivation in Spam would be restorative, however, it is not clear from the information provided that the action would move the drainage network or road density and location indicator baselines fully to the next baseline condition category. While the proposed harvest would decrease canopy cover in the short-term, a UNF hydrologic analysis shows that the action would not affect the hydrologic recovery of at the project (sixth field HUC) scale (see discussion under Bucky). Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Spam is LAA UR cutthroat trout and OC coho. The NMFS concurs with the UNF on this project-level effects determination.

Zinc Creek Bridge Repair. The UNF attributed a degrade to the water chemistry indicator for the proposed repair of the Zinc Creek bridge. However, this degrade was based on the potential for the accidental discharge of hazardous materials, especially green concrete, into the South Umpqua River. Based on the expected site conditions during the proposed in-water work window, as well as the procedures for repair of the bridge bent and precautionary measures proposed by the UNF and described in the BA, the NMFS believes that likelihood of degradation of the water chemistry indicator to a level which would affect individuals of either listed species is negligible. Because of the presence of the degrade checkmark on the project scale, the UNF determined that the Zinc Creek bridge repair would LAA UR cutthroat trout and OC coho. NMFS, however, does not concur with the UNF on this project-level effects determination because of the low likelihood of adverse effects. Therefore, NMFS believes that the bridge repair is NLAA the listed species and therefore will not be evaluated with other Jackson Creek watershed LAA actions under Watershed-Level Effects, below.

Jackson Creek Road Repair and Relocation. The UNF used an MPI which evaluated the Jackson Creek mainstem baseline conditions and project effects for this action. For the road restoration action, the UNF found that on the project level, the sediment and turbidity and substrate indicators would be degraded, while the pool character, low velocity refuge habitat, streambank condition, floodplain connectivity, peak/base flows, drainage network extension, road density/location, and RR indicators would be both maintained and restored. In addition, the UNF determined that the landslide rates indicator would be restored and that all other indicators would be maintained as a result of the action. NMFS notes that two perennial streams would be crossed in the construction of 1.5 miles of new road, therefore the degrade checkmarks are also appropriate for the disturbance history and RR indicators.

The UNF attributes the degrade checkmarks for sediment and turbidity and substrate to a transitory increase in stream sedimentation due to road repairs, obliteration, and construction including culvert placement and removal. The disturbance history and RR indicators would be degraded by the replacement of about 5 acres of forest (0.75 acres of RR) with the newly constructed portion of the 29 road. In the balance, however, the obliteration of 2.2 miles of road, especially the 1.5 miles of the Jackson Creek-bottom 29 road (a total of 38 acres of RR), should be of substantial restorative benefit to all of the indicators which were identified as restores, although likely not enough to move the MPI baseline indicators from one condition to the next. The replacement of about 5 acres of canopy cover

with the relocated 29 road is hydrologically insignificant on both the project and watershed scales. Because of the presence of the degrade checkmarks on the project scale, however, the UNF determined that Jackson Creek Road Restoration is LAA UR cutthroat trout and OC coho. The NMFS concurs with the UNF on this project-level effect determination.

Falcon Creek Bridge Replacement. The UNF's project-level MPI for the Falcon Creek Bridge Replacement is a synthesis of the conditions and effects in six stream reaches in the three sixth field HUCs in which the action would occur. In the MPI, the UNF determined that the RR indicator would be degraded by the proposed action, while the physical barriers, peak/base flows, drainage network, and landslide rates indicators would be restored. In addition, the UNF felt that the sediment and turbidity and substrate indicators would be both degraded and restored, and the remainder of the indicators would be maintained. The UNF attributes the degrade checkmark for RR to the loss of a small area of riparian vegetation due to bridge construction and the degrade checkmarks for sediment and turbidity and substrate to a transitory increase in stream sedimentation due to bridge construction, road obliteration, inactivation, and upgrading (including culvert placement and removal). The restorative activities proposed, while significant on the project scale, would not likely be substantial enough to move any of the MPI indicators from one category to the next. Because of the presence of the degrade checkmarks on the project scale, the UNF determined that the Falcon Creek Bridge Replacement is LAA UR cutthroat trout and OC coho. The NMFS concurs with the UNF on this project-level effect determination.

Grazing. The UNF provided two project-level MPIs for the proposed grazing action in the Elk Creek watershed (one for earth-flow terrain and one for non-earthflow terrain), and one project-level MPI for the proposed grazing action in the Upper Cow Creek watershed. Each of the MPIs are intended to represent conditions and effects in multiple sixth field HUCs. The UNF determined that all of the MPI indicators would be maintained at the project scale by the proposed action, except that several restores were recorded for the areas of earthflow terrain on the north side of Elk Creek. The UNF believes that the action will maintain the indicators at the project scale chiefly because UNF biologists have not detected degradation of stream channel morphology attributable to cattle grazing in the proposed allotments, even though grazing has occurred in there at similar or higher rates than proposed for many years. Also, while UNF biologists believe that some disturbance of riparian areas attributable to cattle would likely occur, the disturbance would not likely be measurable on the site scale and would not retard recovery at that scale because: (1) only incidental riparian vegetation utilization and streambank damage due to livestock will be permitted, (2) little of the particularly sensitive earthflow terrain exists in the two allotments, and (3) intensive monitoring of grazing effects will allow timely corrective actions to occur.

While NMFS believes that the cessation of grazing on the earthflow terrain on UNF-managed land on the north side of Elk Creek is likely to be a positive step in the restoration of the watershed, it is not an "action" in the sense that this term is generally used in Section 7 consultation. Cessation of grazing on the north side of the Elk Creek watershed, as well as in the Upper South Umpqua, Middle South Umpqua, and Jackson Creek watersheds, is, however, a potential factor in the baseline condition for these watersheds and is considered in the Watershed-Level Effects section, below.

The UNF believes that cattle have a small, though real, potential to adversely affect individual UR cutthroat trout eggs, fry, juveniles, and or/adults through trampling of redds and/or harassment. Most of the potential for redd trampling should be avoided by careful management of cattle by the leaseholders in May and June (emergence of UR cutthroat trout fry should be complete by July 1). Also, cattle are less likely to seek out riparian areas and streams during the early part of the grazing season. Because of the small, but not negligible, possibility of the direct take of UR cutthroat trout through trampling and/or harassment, the UNF determined that Tiller grazing is LAA UR cutthroat trout. Because OC coho salmon are likely not present in the Cow Creek watershed, tend to inhabit larger streams in the Elk Creek watershed than do UR cutthroat trout and thus less prone to harassment, and because OC coho salmon fry would likely already have emerged from redds by May 1, the UNF believes that the potential for direct take of individuals of this species by cattle is zero in the Upper Cow Creek watershed and extremely unlikely in the Elk Creek watershed. Because the UNF does not believe that direct take of OC coho salmon by cattle in the Upper Cow Creek watershed is possible, they determined that the proposed action would have no effect on this species in this watershed. Because the UNF believes that the likelihood of direct take of OC coho salmon by cattle is negligible in the Elk Creek watershed, they determined that the proposed action would NLAA this species in this watershed. The NMFS concurs with the UNF on the project-level effect determinations for UR cutthroat trout and OC coho salmon.

PJ. The UNF found that on the project level, the sediment and turbidity and substrate indicators would be degraded, the physical barriers, large woody material, low velocity refuge, floodplain connectivity, peak/base flows, drainage network, road density/location, and RR indicators would be restored and the remaining indicators would be maintained as a result of this action. The UNF attributes the degrade checkmarks for sediment/turbidity and substrate to a transitory increase in stream sedimentation as a result of effects of soil disturbance and surface erosion from ground-based yarding, road construction, stormproofing, and decommissioning activities (including culvert replacement), and fuel treatments. NMFS notes that large wood placement may also cause minor and transitory sedimentation. As noted above, RR buffers and/or road construction and maintenance techniques should prevent most, if not all, ground-disturbing activities from transmitting substantial amounts of sediment into stream channels.

The proposed timber harvest and precommercial thinning would reduce canopy closure in the short-term in the Pinnacle and Junction Creek sixth field HUCs, but a UNF hydrologic analysis shows that the action would not affect the hydrologic recovery at the project scale (see discussion under Bucky). The risk of landslides associated with the sale should be low because of the landform characteristics of the sale area, the type of harvest (partial cut, which maintains much of the existing root strength), and road location. In addition, the retention of full RR widths would make it unlikely that any natural or management-caused landslides would transmit substantial amounts of sediment to stream channels, or if a landslide is large enough to carry to a stream channel, to ensure that substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

Regarding the restore determinations, the UNF provided sufficient information to show that the proposed road treatments, culvert replacement, and large wood placement would likely move the not properly functioning or at-risk baselines for at least the physical barriers, large woody material,

peak/base flows, drainage network extension, and road density/location to the at-risk or properly functioning condition for the Pinnacle Creek sixth field HUC. For the Junction Creek sixth field HUC, the proposed action would likely restore at least the physical barriers, large woody material, and road density/location indicators. Substantial restorative progress would likely be made for the other indicators which the UNF marked as restores for PJ, but sufficient information was not available to the NMFS to concur that the indicators would be restored enough to move the checkmarks from one category to another. Although UR cutthroat trout are not known to occur in Pinnacle or Junction creeks, this species is known to occur in other streams in the upper Little River drainage. In addition, Pinnacle and Junction creeks are within UR cutthroat trout critical habitat, and based on the presence of the degrade checkmarks on the project scale, the UNF determined that PJ is LAA individuals of the species. OC coho salmon, however, are known to occur no nearer to the project area than 7 miles downstream of the mouth of Pinnacle Creek. Therefore, the UNF believes that PJ would have no more than an insignificant effect on individual OC coho salmon or their habitat, and is NLAA this species. The NMFS concurs with the UNF on this project-level effects determination.

Watershed-Level Effects. In the BA, the UNF provided watershed-scale MPIs and ACS consistency reviews which evaluated each of the eighteen actions. The watershed-scale MPIs evaluate the effects of the proposed action on habitat indicators in the fifth field HUC relative to the long-term environmental baseline. While many actions, including those that may be beneficial in the long-term, have short-term, small-scale adverse effects, only those actions with adverse effects which are significant at the watershed scale over a long period would receive a degrade checkmark. It is important to realize that both active and passive restoration activities contribute to the environmental baseline. In particular, the passive restoration that will occur over the long-term (at least a decade, see above), especially in RRs, is a principal component of the watershed recovery aspect of the NFP. The role of RRs, LSRs, etc., in restoration of watersheds is described in the NFP ROD (USDA and USDI 1994) and in NMFS (1997b).

The ACS consistency reviews included a description of how the proposed projects comply with the applicable NFP standards and guidelines (S&Gs) for the listed ESUs and how the proposed projects complied with the nine ACS objectives for those ESUs. Because there is strong correspondence between the habitat indicators of the MPI and the ACS objectives, it is likely that if none of the habitat indicators in the watershed level MPI is degraded by an action, then compliance with ACS objectives for the ESUs is also achieved. In the descriptions below, only those MPI habitat indicators which were determined to degrade at the project (usually sixth field HUC) scale are discussed. Similarly, the S&Gs and ACS objectives which may be of issue are noted. Whether discussed below or not, information on all of the habitat indicators, relevant S&Gs, and ACS objectives was provided in the UNF's BA and were considered in our analysis.

Upper South Umpqua Watershed. For this watershed, a part of the Upper South Umpqua Tier 1 Key Watershed under the NFP, the UNF has proposed to conduct Bucky and three ERFO road repair projects. The UNF determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level degrades which were recorded because of Bucky and two of the ERFO road repair projects. As noted under Project-Level Effects, above, the sediment and

turbidity and substrate indicators were thought to be degraded as a result of timber yarding, fuel treatments, and road upgrading, inactivation, and obliteration. However, per the project-level discussion of Bucky, above, these degradations are not thought to be consequential in the long-term. The relatively small amount of sediment that is likely to enter watercourses as a result of the proposed activity would not likely be distinguishable from background natural sedimentation and sedimentation from previous human activities. In fact, the reduction in active road density and road improvements are beneficial over the long-term. The ERFO road repairs should also reduce sediment and turbidity in the long-term by stabilizing eroding road embankments. Stream sedimentation occurs under pristine watershed conditions and is usually harmful to the persistence of salmonid populations only when it occurs outside of the natural range of variability on a large spatial scale for long periods. As noted under Project-Level Effects, above, the water chemistry indicator should not be affected by the proposed ERFO projects.

According to information provided by the UNF, in 1988 about 75% of the Upper South Umpqua watershed was in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. Because harvest rates on UNF-managed land since 1988 have not been as high as in previous decades, the vegetative hydrologic recovery of the watershed is likely somewhat higher than 75% and thus should allow maintenance of peak-flow responses to rain-on-snow events. In addition, only about 0.02% of the Upper South Umpqua watershed is privately-owned and the remainder of the watershed is managed by the UNF with about 77% of the acreage managed as LSR, Wilderness, or Administratively Withdrawn. About 30% of the remaining land in the watershed is protected as RR (TRD 1996a). Therefore, in excess of 83% of the Federally-administered land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed actions should not reduce long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, and would slightly reduce road density. In addition, in compliance with S&G GM-1, the proposed grazing plan for the TRD would discontinue the lease of the Acker Divide cattle grazing allotment (partly within the Upper South Umpqua watershed), so any RR adversely affected by cattle grazing should achieve some level of restoration over the next decade. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded. Based on the EA and the ACS consistency review for Bucky, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would be achieved. In addition, the proposed road obliteration, inactivation, and upgrading is consistent with the Upper South Umpqua's status as a Key Watershed. The Buckeye/Zinc WA recommends that vegetation management in the project area focus on activities (such as Bucky) which would mimic or encourage the natural low intensity, high frequency fire regime. The WA also recommends reducing road density. While other areas of the UNF may be of higher priority for road repair or obliteration, the funding for the proposed activities is specific to the identified ERFO sites and thus is not transferable to other locations on the UNF.

Middle South Umpqua watershed. For this watershed, a part of the Upper South Umpqua Tier 1 Key Watershed under the NFP, the UNF has proposed to conduct Zinc, Spam, Zinc Creek Bridge

Repair, and two ERFO road repair projects. The UNF determined that all of the habitat indicators would be maintained or restored at the watershed scale, despite the project-level degradations which were recorded on seven of the eight MPIs. As noted under Project-Level Effects, above, the sediment and turbidity indicator was thought to be degraded as a result of timber yarding, fuel treatments, road upgrading, inactivation, and obliteration. Per the project-level discussion of Bucky, above, however, these degradations are not thought to be consequential in the long-term. In fact, the reduction in active road density and road improvements are beneficial over the long-term. The ERFO road repairs should also reduce sediment and turbidity in the long-term by stabilizing eroding road embankments. See also the discussion of stream sedimentation in the Upper South Umpqua watershed, above. As noted under Project-Level Effects, above, the water chemistry indicator should not be affected by the proposed ERFO projects or repair of the Zinc Creek bridge. The UNF marked restores in the watershed-level MPI for physical barriers, road density/location, and RR. While NMFS agrees that some level of restoration for these indicators would occur as a result of the proposed actions, the amount of restoration proposed would not be sufficient to move the indicator baselines from not properly functioning to at-risk at the watershed level.

According to information synthesized by the UNF from the Deadman/Dompier (BLM 1997), Dumont (TRD 1995a), Deadman/Francis (TRD 1997a), Buckeye/Zinc (TRD 1996a), and Boulder/Ash (TRD 1997b) WAs, about 85% of the Middle South Umpqua watershed is in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, only about 12% of the watershed is privately-owned. The remainder of the watershed is managed by the UNF (about 71%) or BLM (about 17%). Also, about 45% of the land in the Middle South Umpqua watershed will be protected as LSR and at least 23% of the remaining Federally-managed land is RR. Therefore, a substantial portion (probably close to two-thirds) of the Federal land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed actions should not reduce long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, and would slightly reduce road density. In addition, in compliance with S&G GM-1, the proposed grazing plan for the TRD would discontinue the lease of the Acker Divide cattle grazing allotment which is partially located within the Middle South Umpqua watershed, so any RR adversely affected by cattle grazing should achieve some level of restoration over the next decade. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and the ACS consistency review for Zinc, Spam, Zinc Creek Bridge Repair, and the two ERFO repair projects, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would be achieved. Specifically, the proposed RR commercial thinning in Zinc is compliant with S&G TM-1 because it would hasten the establishment of late seral habitat. In addition, the proposed road obliteration, inactivation, and upgrading is consistent with the Middle South Umpqua's status as a Key Watershed. The Buckeye/Zinc WA specifically recommends that the UNF thin in stem exclusion stands in the Zinc Creek sixth field HUC to create late successional habitat more rapidly, including in RR; Zinc responds to this recommendation. More generally, the Buckeye/Zinc WA recommends that vegetation management in the project area focus on

activities which would restore stands to a species composition and structure that is more typical of native forests prior to fire suppression and partial overstory removal. Similar recommendations are made in the Deadman/Francis WA for the Spam project area. Both WAs also recommend reducing road density. While other areas of the UNF may be of higher priority for road repair or obliteration, the funding for the proposed activities is specific to the identified ERFO sites and thus is not transferable to other locations on the UNF.

Zinc was elevated by the previous UNF Level 1 Team to the Level 2 team (by a May 11, 1998 memorandum) because the majority of the team, with the NMFS representative's dissent, felt that the proposed regeneration harvest of 76 acres of Matrix may not be consistent with the ACS. The current UNF Level 1 Team did not raise this objection in their review of the proposed action. The UNF provided a response to the May 11 elevation (authored by the UNF's Level 1 Team fishery biologist) in the BA. This response, which demonstrates that vegetative hydrologic recovery is occurring on both the project and watershed scales even with the proposed regeneration harvest, adequately answers the ACS consistency question raised by the previous UNF Level 1 Team.

Jackson Creek watershed. Jackson Creek Road repair and relocation, Falcon Creek Bridge replacement, and two ERFO road repair projects are proposed for the Jackson Creek watershed, which, as part of the Upper South Umpqua River basin, is a Tier 1 Key Watershed. For this action, the UNF determined that all of the habitat indicators would be maintained at the Jackson Creek watershed scale, despite the project-level degrades which were recorded in three of the four MPIs—the NMFS believes that the RR and disturbance history indicators would also be degraded at the project level by the Jackson Creek Road repair and relocation. As noted under Project-Level Effects, above, the sediment and turbidity and substrate indicators were thought to be degraded as a result of road-related actions. However, per the project-level discussion of Bucky, above, these degrades are not thought to be consequential in the long-term. In fact, the reduction in active road density and road improvements are beneficial over the long-term, as is the obliteration of a substantial length of the Jackson Creek valley-bottom road. The ERFO road repairs should also reduce sediment and turbidity in the long-term by stabilizing eroding road embankments. See also the discussion of stream sedimentation in the Upper South Umpqua watershed, above. As noted under Project-Level Effects, above, the water chemistry indicator should not be affected by the proposed ERFO projects.

According to TRD (1995b), about 83% of the Jackson Creek watershed was in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, only about 6% of the Jackson Creek watershed is privately-owned; the remainder of the watershed is managed by the UNF. Also, about 60% of the Federally-managed land in the Jackson Creek watershed will be protected as LSR, Wilderness, or Research Natural Area, and a substantial amount (at least 25-30%) of the remaining Federally-managed land is RR. Therefore, a substantial portion (probably close to three-quarters) of the Federal land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed actions should not reduce long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, would restore a substantial portion of the Jackson Creek RR, and would slightly reduce road density. In addition, in compliance with S&G

GM-1, the proposed grazing plan for the TRD would discontinue the lease of the Acker Divide, Whiskey Camp, and Summit cattle grazing allotments; portions or all of which are in the Jackson Creek watershed, so any RR adversely affected by cattle grazing should achieve some level of restoration over the next decade. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and ACS consistency review for the proposed actions, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would also be achieved. Specifically, the relocation of the Jackson Creek road through 0.75 acres of RR is compliant with S&Gs RF-2 and RF-3 because the relocation allows the minimization of road location in RR through the restoration of 38 acres of RR currently affected by the Jackson Creek road. The relocated road would also be designed and maintained up to current standards and therefore comply with S&Gs RF-2, RF-3, RF-4, and RF-5. In addition, the proposed road obliteration, inactivation, and upgrading is consistent with Jackson Creek's status as a Key Watershed. The Jackson Creek WA specifically recommends that the UNF suspend cattle grazing in the riparian reserves and unique habitats of the watershed and that the valley-bottom Jackson Creek road be a very high priority for decommissioning. The WA also recommends reduction of culvert plugging and landslide risk in the project area and evaluation of floodplain connectivity in the Falcon Creek project area. While other areas of the UNF may be of higher priority for road repair or obliteration, the funding for the Jackson Creek road relocation and Falcon Creek bridge replacement (and associated ERFO repair sites), as well as the other two ERFO repair sites is specific to the identified sites and thus is not transferable to other locations on the UNF. Funding for the proposed road obliteration, inactivation, upgrading and culvert replacement associated with the Falcon Creek bridge replacement has not yet been identified.

Both the Jackson Creek road relocation and Falcon Creek bridge replacement projects were elevated by the previous UNF Level 1 Team to the Level 2 team by a March 17, 1998, memorandum. The proposed actions were elevated primarily because the team felt the proposed actions, while restorative in nature and generally consistent with WA recommendations, were insufficient in themselves to restore the mainstem of Jackson Creek and that the expenditure of funds would tend to preclude more effective and far-reaching restoration, and thus would not be consistent with the direction of the NFP. The current UNF Level 1 Team reviewed the March 17, 1998, elevation issues in their review of the proposed actions, but did not reiterate the elevation to the Level 2 Team. The UNF provided responses to the March 17 elevation (authored by the UNF's Level 1 Team fishery biologist) in the BA. These responses, which demonstrate that further and more extensive restoration would likely not be precluded by the proposed actions, adequately answers the NFP consistency question raised by the previous UNF Level 1 Team.

Elk Creek watershed. For this watershed, a part of the Upper South Umpqua Tier 1 Key Watershed under the NFP, the UNF has proposed to lease grazing allotments and conduct three ERFO road repair projects. The UNF determined that all of the habitat indicators would be maintained or restored at the watershed scale despite the project-level degradations which were recorded for the ERFO projects.

Grazing was determined to maintain all of the indicators at the project scale. As noted under Project-Level Effects, above, the sediment and turbidity, substrate, and pool character indicators were thought to be degraded as a result of the road repair in the Callahan Creek sixth field HUC. Per the project-level discussion of the ERFO projects, the ERFO road repairs should reduce sediment and turbidity in the long-term by stabilizing eroding road embankments. See also the discussion of stream sedimentation in the Upper South Umpqua watershed, above. As noted under Project-Level Effects, above, the water chemistry indicator should not be affected by the proposed ERFO projects.

According to TRD (1996b), about 38% of the Elk Creek watershed is privately-owned with the remainder of the watershed managed by the UNF. About 42% of the Federally-managed land in the Elk Creek watershed will be protected as LSR, and about 37% of the remaining Federally-managed land is RR. Therefore, about 63% of the Federal land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities; only incidental use of riparian areas by cattle is anticipated or will be allowed. The proposed actions should not reduce long-term hydrologic or RR recovery and should reduce long-term stream sediment input without a substantial short-term increase. In addition, in compliance with S&G GM-1, the proposed grazing plan for the TRD would discontinue the lease of the Summit cattle grazing allotment (partly within the Elk Creek watershed), as well as the portion of the Divide allotment on the north side of Elk Creek, so any RR adversely affected by cattle grazing in these area should achieve some level of restoration over the next decade. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and ACS consistency review for the proposed actions, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would also be achieved. As noted above, the UNF will meet S&G GM-1 and GM-3 by leasing grazing allotments only in areas where cattle grazing would not retard attainment of the ACS objectives and by managing and monitoring in the proposed grazing allotments to ensure consistency with ACS objectives. None of the actions proposed are inconsistent with Elk Creek's status as a Key Watershed, while the termination of cattle grazing allotments on the north side of Elk Creek would protect and allow recovery of the most sensitive earthflow landforms in the watershed. The Elk Creek WA specifically recommends that the UNF suspend cattle grazing in the riparian reserves and unique habitats on the north side of Elk Creek and near Drew Lake. The proposed grazing plan accomplishes the former objective but not the latter; however, standards and monitoring should ensure that only incidental use of these areas. The ERFO sites are within the Callahan Creek sixth field HUC, which was identified in the WA as a priority area for road decommissioning and rehabilitation to reduce sediment input to streams. The repair of the ERFO sites would rehabilitate these sites to some extent by improving drainage and reducing the long-term risk of sedimentation and road failure. Funding for the proposed repair of the sites is specific to the identified sites and thus is not transferable to other locations on the UNF, nor would the repairs tend to preclude road decommissioning at a later date if funding becomes available.

The proposed 1998 annual operating plan for Tiller grazing was elevated by the previous UNF Level 1

Team to the Level 2 team by a March 17, 1998, memorandum. The previous Level 1 Team felt that the grazing actions presented in the EA for the 1998 annual operating plan, with the exception of a complete phase-out of grazing on the TRD (Alternative 5 in the EA), would be inconsistent with the direction of the NFP and ACS. The proposed grazing action analyzed in this BO, however, was not among those reviewed by the previous Level 1 Team in 1998, so that team's analysis of the presented alternatives in 1998 is not relevant to the current proposed action. The current UNF Level 1 Team did not raise any NFP or ACS consistency questions in their review of the proposed grazing action analyzed in this BO.

Upper Cow Creek watershed. For this non-Key watershed, the UNF has proposed to lease a grazing allotment. The UNF determined that all of the habitat indicators would be maintained or restored at both the project and watershed scale with the proposed action.

According to TRD (1995c) and the Upper Cow Creek fifth field HUC assessment (included in the BA) about 23% of the Upper Cow Creek watershed is privately-owned; the BLM administers about 26% of the acreage with the remainder of the watershed managed by the UNF. Approximately 44% of the Federal land in the watershed is protected as LSR or is Administratively Withdrawn and about 49% of the remainder is protected as RR. Therefore, in excess of 71% of the Federally-managed land in the watershed—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities; only incidental use of riparian areas by cattle is anticipated or will be allowed. The proposed action should not reduce long-term hydrologic or RR recovery or affect stream sediment input. Thus, when the proposed action is considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and ACS consistency review for the proposed actions, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would also be achieved. As noted above, the UNF will meet S&G GM-1 and GM-3 by leasing grazing allotments only in areas where cattle grazing would not retard attainment of the ACS objectives and by managing and monitoring in the proposed grazing allotments to ensure consistency with ACS objectives. There are no specific recommendations in the Cow Creek WA regarding cattle grazing. The UNF does not have a comprehensive watershed restoration plan, but the proposed action should not hinder future restoration activities. Also, see the discussion of former Level 1 Team elevation of prior grazing proposals in the Elk Creek Watershed-Level Effects, above.

Little River watershed. For this non-Key Watershed, the UNF has proposed to conduct PJ and determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level degradates which were recorded. As noted above under Project-Level Effects, the sediment and turbidity and substrate indicators were thought to be degraded as a result of timber yarding, fuel treatments, and road upgrading, inactivation, and obliteration (including culvert replacement). However, per the project-level discussion of Bucky, above, these degradates are not thought to be consequential in the long-term. In fact, the reduction in active road density and road improvements are beneficial over the long-term. See also the discussion of stream sedimentation in the

Upper South Umpqua watershed, above.

According to NURD and BLM (1995) and the Little River fifth field HUC assessment (included in the BA), about 37% of the Little River watershed is privately-owned; the remainder of the watershed is managed by the UNF (about 48%) or BLM (about 15%). About 76% of the Little River watershed is in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, a minimum of 25% of the Federal forest land in the Little River watershed, which is classified as an Adaptive Management Area, will be protected as RR. The actual proportion of RR in the watershed is substantially higher because much of the RR protecting intermittent streams has not been incorporated into the database (Barbara Fontaine, Resource Planner, NURD, pers. comm., March 3, 1999). Therefore, the watershed is currently vegetatively and hydrologically recovered. The proposed action would not decrease the short-term or long-term hydrologic recovery of the watershed and all of the RR will be protected from non-restorative activities. The proposed actions should not reduce project-level or watershed-level long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, would slightly increase instream and riparian large woody material, and would slightly reduce road density and stream extension. Thus, when the proposed action is considered in the context of baseline conditions and foreseeable passive restoration of a large portion of the watershed, recovery of the watershed should not be retarded.

Based on the EA and the ACS consistency review for PJ, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would be achieved. While Little River is not a Key Watershed, the funding for the proposed large wood placement, culvert upgrading, and road obliteration, inactivation, and upgrading is tied to the timber harvest, and thus could not be used in a Key Watershed where the UNF's restoration efforts may be of a higher priority. The Little River WA specifically recommends that fuel loadings be reduced in the Taft Mountain area which includes part of the Pinnacle Creek subwatershed. More generally, the WA recommends actions which would help to protect and restore riparian areas, water quality, and streamflow and sediment regimes; PJ is consistent with these recommendations.

Effects Summary. The NMFS has considered the applicability of these analyses to each of the actions identified in the BA and in this letter. NMFS is not aware of any other special characteristics of the particular sales that would cause greater or materially different effects on the subject salmonid species and their habitat than is discussed in these references. Similarly, NMFS is not aware of any newly available information that would materially change these effects analyses. In those portions of watersheds discussed in this Opinion that are privately-owned, the NMFS assumes that the cumulative effects of non-Federal land management practices will continue at similar intensities as in recent years (NMFS 1997b, at 41-42).

The effects of the actions on UR cutthroat trout and OC coho salmon and their habitat are presented in the BA prepared by the UNF, specifically in the project and watershed-level MPIs, BEs, ACS consistency reviews, and EAs. NMFS finds those descriptions to be adequate for this analysis. Based on this information, the NMFS does not consider these actions would likely result in more effects than

expected or considered in NMFS (1997b). In particular, the UNF determined and NMFS concurred, that relevant NFP S&Gs would be followed and that ACS objectives would be met at the watershed scale and over the long-term when the effects of the proposed actions are combined with the environmental baseline. This ACS consistency determination was made because the UNF showed that, despite the potential short-term adverse effects of their proposed actions, watershed habitat indicators would be maintained or restored over the long-term.

The NMFS expects that ACS objectives which may be affected by the subject actions will be met for the following reasons: (1) Potential sediment input and hydrologic effects from the small amount of proposed temporary, semi-permanent, and permanent road construction would be minimized by implementation of appropriate mitigation measures, and temporary, semi-permanent, and permanent roads would not occur in RR (except for a small area in the Jackson Creek road relocation); (2) potential sediment input from proposed road repair, upgrade, inactivation, obliteration, decommissioning, resurfacing, reconstruction, and storm proofing would be minimized by implementation of appropriate Best Management Practices (specific procedures that minimize the adverse environmental effects of activities) and the long-term effects of these actions should be beneficial because of lessened sediment and hydrologic effects from existing and former roads; (3) there would be little increased risk of mass wasting due to the proposed activities and any mass wasting that might occur would not likely be transmitted to stream channels or would be accompanied by substantial LWD; (4) thinning and PCT in RR in Bucky, Zinc, Spam, and PJ and underburning in PJ should reduce the risk of catastrophic fire and may also accelerate attainment of large trees to serve as a future source of LWD for streams in the sale area (otherwise, no vegetation treatments or timber harvest will occur in RR); (5) the ground compacting activity associated with timber sales—partial suspension-, GBE-, and tractor-yarding—will be mitigated through ripping and water-barring of skid trails and little of the yarding activity will occur in RR; and (6) the amount of canopy cover removed in the timber sales would be small compared to the existing canopy cover at both the project and watershed scales and with passive restoration which will occur in the watersheds over the long-term, should not impair recovery of the watersheds. Despite the minor, short-term adverse effects, these actions maintain or restore essential habitat functions and will not impede recovery of salmonid habitat which is a long-term goal of the NFP.

Section 7(a)(2) Determinations

The NMFS concludes that, when the effects of these proposed site specific actions are added to the environmental baseline and cumulative effects occurring in the relevant action areas, they are not likely to jeopardize the continued existence of UR cutthroat trout, OC coho salmon, or OC steelhead.

Additionally, NMFS concludes that the proposed actions would not cause adverse modification or destruction of UR cutthroat trout critical habitat. This is because the key component of the jeopardy analysis in this BO was the use of the MPI, and it is clear that the MPI habitat indicators mirror the essential features of UR cutthroat trout critical habitat. The essential features of UR cutthroat trout critical habitat and the likely effects of the proposed actions were thus explicitly considered in this BO through the use of the MPIs. Further, the no jeopardy conclusion in this BO is based on the effects of

the actions on UR cutthroat trout habitat and the adverse modification or destruction of habitat standard is defined similarly to the jeopardy standard. It therefore follows that because the actions would not jeopardize the continued existence of UR cutthroat trout, critical habitat for this species would also not be adversely modified or destroyed.

In reaching these conclusions, NMFS has utilized the best scientific and commercial data available as documented herein and by the BA and documents incorporated by reference.

Incidental Take Statement

Effects resulting from timber sales, road-related activities, and grazing are expected to be the sources of incidental take associated with the proposed actions covered by this Opinion. Because of the implementation of appropriate mitigation measures for these activities, sediment and hydrologic impacts are expected to be minimized. This incidental take statement applies to UR cutthroat trout and OC coho salmon only. Should OC steelhead become listed under the ESA, this incidental take statement would become effective for this species.

Adverse effects of management actions such as these are largely unquantifiable in the short-term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some low level of incidental take to occur due to these actions, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves. The adverse effects of the actions, however, would be confined to the sub-watersheds in which the actions are proposed to occur.

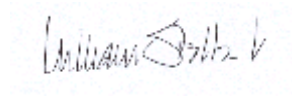
The incidental take statement in NMFS (1997b) provided reasonable and prudent measures and terms and conditions to avoid or minimize the take of listed salmonids from beneficial road-related actions (pages 64 and 70), road construction (pages 65 and 70-72), livestock grazing (pages 65 and 72-73), and riparian rock quarry operation (pages 66 and 74) that may be applied to site-specific actions, if appropriate. NMFS hereby applies the findings, reasonable and prudent measures, and terms and conditions (except for 10 a.) set forth in the Incidental Take Statement of NMFS (1997b) to the relevant site-specific actions.

Conclusions

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). The UNF must reinitiate this ESA consultation if: (1) The amount or extent of taking specified in the incidental take statement above is exceeded, (2) new information reveals effects of the action that may affect listed species in a way not previously considered, (3) the action is modified in a manner that causes an effect to the listed species that was not previously considered, or (4) a new species is listed or critical habitat designated that may be affected by identified action.

If you have any questions, please contact Dan Kenney of my staff at (541) 957-3385.

Sincerely,

A handwritten signature in dark ink, appearing to read "William Stelle, Jr.", with a stylized flourish at the end.

William Stelle, Jr.
Regional Administrator

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